Analytical Laboratory

13339 Hagers Ferry Road
Huntersville, NC 28078-7929
McGuire Nuclear Complex - MG03A2
Phone: 980-875-5245 Fax: 980-875-4349

Order Summary Report

Order Number: **J12090223**

Customer Name(s): ALlen Stowe, MELONIE MARTIN

Customer Address: 3195 Pine Hall Rd
Mailcode: Belews Steam Station
Belews Creek, NC 28012

Lab Contact: Jason C Perkins Phone: 980-875-5348

Report Authorized By: (Signature) Digitally signed by jay perkins DN: cn=jay perkins, o=Analytical Lab, ou, email=jay.perkins@duke-energy.com, c=US Date: 2012.10.05 14:32:05 -04'00' **Date:** 10/5/2012

Program Comments:

Please contact the Program Manager (Jason C Perkins) with any questions regarding this report.

Data Flags & Calculations:

Any analytical tests or individual analytes within a test flagged with a Qualifier indicate a deviation from the method quality system or quality control requirement. The qualifier description is found at the end of the Certificate of Analysis (sample results) under the qualifiers heading. All results are reported on a dry weight basis unless otherwise noted. Subcontracted data included on the Duke Certificate of Analysis is to be used as information only. Certified vendor results can be found in the subcontracted lab final report. Duke Energy Analytical Laboratory subcontracts analyses to other vendor laboratories that have been qualified by Duke Energy to perform these analyses except where noted.

Data Package:

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical laboratory with any questions. The order of individual sections within this report is as follows:

Job Summary Report, Sample Identification, Technical Validation of Data Package, Analytical Laboratory Certificate of Analysis, Analytical Laboratory QC Reports, Sub-contracted Laboratory Results, Customer Specific Data Sheets, Reports & Documentation, Customer Database Entries, Test Case Narratives, Chain of Custody (COC)

Certification:

The Analytical Laboratory holds the following State Certifications : North Carolina (DENR) Certificate #248, South Carolina (DHEC) Laboratory ID # 99005. Contact the Analytical Laboratory for definitive information about the certification status of specific methods.

Sample ID's & Descriptions:

Sample ID	Plant/Station	Collection Date and Time	Collected By	Sample Description
2012019920	BELEWS	13-Sep-12 9:30 AM	Josh Quinn	SOURCE WATER
2012019921	BELEWS	13-Sep-12 9:25 AM	Josh Quinn	SOURCE WATER HG BLK
2012019922	BELEWS	13-Sep-12 8:58 AM	Josh Quinn	BOTTOM ASH SLUICE WATER
2012019923	BELEWS	13-Sep-12 7:55 AM	Josh Quinn	BOTTOM ASH SLUICE WATER HG BLK
2012019924	BELEWS	13-Sep-12	JAY PERKINS	TRIP BLANK
2012019925	BELEWS	13-Sep-12 9:05 AM	Josh Quinn	FIELD BLANK
2012019926	BELEWS	13-Sep-12 8:58 AM	Josh Quinn	BOTTOM ASH

7 Total Samples

Technical Validation Review

Checklist:

COC and .pdf report are in agreement with sample totals and analyses (compliance programs and procedures).	☑ Yes	☐ No
All Results are less than the laboratory reporting limits.	☐ Yes	☑ No
All laboratory QA/QC requirements are acceptable.	☑ Yes	☐ No

Report Sections Included:

- ☑ Job Summary Report
- ☑ Sample Identification
- ☑ Technical Validation of Data Package
- ☑ Analytical Laboratory Certificate of Analysis
- ☐ Analytical Laboratory QC Report
- ☑ Sub-contracted Laboratory Results
- ☐ Customer Specific Data Sheets, Reports, & Documentation
- ☐ Customer Database Entries
- ☑ Chain of Custody
- ☑ Electronic Data Deliverable (EDD) Sent Separately

Reviewed By: DataBase Administrator Date: 10/5/2012

Certificate of Laboratory Analysis

Order # J12090223

Site: SOURCE WATER **Sample #: 2012019920**

Collection Date: 13-Sep-12 9:30 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
TOTAL RECOVERABLE METALS BY ICP								
Aluminum (Al)	**0.035**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:35:00 PI	DJSULL1
Barium (Ba)	**0.018**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:35:00 PI	DJSULL1
Boron (B)	**0.072**	mg/L		0.05	1	EPA 200.7	9/25/2012 2:35:00 PI	DJSULL1
Calcium (Ca)	**8.26**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:35:00 PI	DJSULL1
Iron (Fe)	**0.049**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:35:00 PI	DJSULL1
Magnesium (Mg)	**3.55**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:35:00 PI	DJSULL1
Manganese (Mn)	**0.013**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:35:00 PI	DJSULL1
Potassium (K)	**3.61**	mg/L		0.1	1	EPA 200.7	9/25/2012 2:35:00 PI	DJSULL1
Sodium (Na)	**6.62**	mg/L		0.05	1	EPA 200.7	9/25/2012 2:35:00 PI	DJSULL1
Tin (Sn)	**< 0.01**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:35:00 PI	DJSULL1
TOTAL RECOVERABLE METALS BY ICP-MS								
Antimony (Sb)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Arsenic (As)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Beryllium (Be)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Cadmium (Cd)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Chromium (Cr)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Cobalt (Co)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Copper (Cu)	**1.35**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Lead (Pb)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Molybdenum (Mo)	**2.10**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Nickel (Ni)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Selenium (Se)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Silver (Ag)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Strontium (Sr)	**70.9**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Thallium (Tl)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR
Zinc (Zn)	**34.1**	ug/L		1	1	EPA 200.8	9/21/2012 10:13:00 A	KRICHAR

Site: SOURCE WATER HG BLK **Sample #: 2012019921**

Collection Date: 13-Sep-12 9:25 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Certificate of Laboratory Analysis

This report shall not be reproduced, except in full.

Order # J12090223

Site: BOTTOM ASH SLUICE WATER **Sample #: 2012019922**

Collection Date: 13-Sep-12 8:58 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
TOTAL RECOVERABLE METALS BY ICP								
Aluminum (Al)	**0.148**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:54:00 PI	DJSULL1
Barium (Ba)	**0.040**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:54:00 PI	DJSULL1
Boron (B)	**0.067**	mg/L		0.05	1	EPA 200.7	9/25/2012 2:54:00 PI	DJSULL1
Calcium (Ca)	**8.14**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:54:00 PI	DJSULL1
Iron (Fe)	**0.101**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:54:00 PI	DJSULL1
Magnesium (Mg)	**3.47**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:54:00 PI	DJSULL1
Manganese (Mn)	**0.013**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:54:00 PI	DJSULL1
Potassium (K)	**3.43**	mg/L		0.1	1	EPA 200.7	9/25/2012 2:54:00 PI	DJSULL1
Sodium (Na)	**6.42**	mg/L		0.05	1	EPA 200.7	9/25/2012 2:54:00 PI	DJSULL1
Tin (Sn)	**< 0.01**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:54:00 PI	DJSULL1
TOTAL RECOVERABLE METALS BY ICP-MS								
Antimony (Sb)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Arsenic (As)	**3.03**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Beryllium (Be)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Cadmium (Cd)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Chromium (Cr)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Cobalt (Co)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Copper (Cu)	**7.91**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Lead (Pb)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Molybdenum (Mo)	**3.09**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Nickel (Ni)	**1.59**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Selenium (Se)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Silver (Ag)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Strontium (Sr)	**79.1**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Thallium (Tl)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR
Zinc (Zn)	**5.37**	ug/L		1	1	EPA 200.8	9/21/2012 10:32:00 A	KRICHAR

Site: BOTTOM ASH SLUICE WATER HG BLK **Sample #: 2012019923**

Collection Date: 13-Sep-12 7:55 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Certificate of Laboratory Analysis

Order # J12090223

Site: TRIP BLANK **Sample #: 2012019924**

Collection Date: 13-Sep-12 Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
TOTAL RECOVERABLE METALS BY ICP								
Aluminum (Al)	**< 0.005**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:39:00 PI	DJSULL1
Barium (Ba)	**< 0.005**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:39:00 PI	DJSULL1
Boron (B)	**< 0.05**	mg/L		0.05	1	EPA 200.7	9/25/2012 2:39:00 PI	DJSULL1
Calcium (Ca)	**0.016**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:39:00 PI	DJSULL1
Iron (Fe)	**< 0.01**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:39:00 PI	DJSULL1
Magnesium (Mg)	**< 0.005**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:39:00 PI	DJSULL1
Manganese (Mn)	**< 0.005**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:39:00 PI	DJSULL1
Potassium (K)	**< 0.1**	mg/L		0.1	1	EPA 200.7	9/25/2012 2:39:00 PI	DJSULL1
Sodium (Na)	**< 0.05**	mg/L		0.05	1	EPA 200.7	9/25/2012 2:39:00 PI	DJSULL1
Tin (Sn)	**< 0.01**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:39:00 PI	DJSULL1
TOTAL RECOVERABLE METALS BY ICP-MS								
Antimony (Sb)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Arsenic (As)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Beryllium (Be)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Cadmium (Cd)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Chromium (Cr)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Cobalt (Co)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Copper (Cu)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Lead (Pb)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Molybdenum (Mo)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Nickel (Ni)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Selenium (Se)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Silver (Ag)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Strontium (Sr)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Thallium (Tl)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR
Zinc (Zn)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:35:00 A	KRICHAR

Certificate of Laboratory Analysis

Order # J12090223

Site: FIELD BLANK **Sample #: 2012019925**

Collection Date: 13-Sep-12 9:05 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
TOTAL RECOVERABLE METALS BY ICP								
Aluminum (Al)	**< 0.005**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:43:00 PI	DJSULL1
Barium (Ba)	**< 0.005**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:43:00 PI	DJSULL1
Boron (B)	**< 0.05**	mg/L		0.05	1	EPA 200.7	9/25/2012 2:43:00 PI	DJSULL1
Calcium (Ca)	**0.012**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:43:00 PI	DJSULL1
Iron (Fe)	**< 0.01**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:43:00 PI	DJSULL1
Magnesium (Mg)	**< 0.005**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:43:00 PI	DJSULL1
Manganese (Mn)	**< 0.005**	mg/L		0.005	1	EPA 200.7	9/25/2012 2:43:00 PI	DJSULL1
Potassium (K)	**< 0.1**	mg/L		0.1	1	EPA 200.7	9/25/2012 2:43:00 PI	DJSULL1
Sodium (Na)	**< 0.05**	mg/L		0.05	1	EPA 200.7	9/25/2012 2:43:00 PI	DJSULL1
Tin (Sn)	**< 0.01**	mg/L		0.01	1	EPA 200.7	9/25/2012 2:43:00 PI	DJSULL1
TOTAL RECOVERABLE METALS BY ICP-MS								
Antimony (Sb)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Arsenic (As)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Beryllium (Be)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Cadmium (Cd)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Chromium (Cr)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Cobalt (Co)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Copper (Cu)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Lead (Pb)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Molybdenum (Mo)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Nickel (Ni)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Selenium (Se)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Silver (Ag)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Strontium (Sr)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Thallium (Tl)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR
Zinc (Zn)	**< 1**	ug/L		1	1	EPA 200.8	9/21/2012 10:39:00 A	KRICHAR

Site: BOTTOM ASH **Sample #: 2012019926**

Collection Date: 13-Sep-12 8:58 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY (COLD VAPOR) IN SOLIDS - (Analysis Performed by Test America)								
Vendor Parameter	**Complete**					Vendor Method		V_T. America

Certificate of Laboratory Analysis

Order # J12090223

Site: BOTTOM ASH **Sample #: 2012019926**

Collection Date: 13-Sep-12 8:58 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
TOTAL METALS BY ICP								
Aluminum (Al)	**779**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Antimony (Sb)	**< 2**	mg/Kg		2	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Barium (Ba)	**57.3**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Beryllium (Be)	**< 0.333**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Boron (B)	**< 3.33**	mg/Kg		3.33	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Cadmium (Cd)	**< 0.333**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Calcium (Ca)	**238**	mg/Kg		0.667	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Chromium (Cr)	**4.43**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Cobalt (Co)	**2.26**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Copper (Cu)	**2.98**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Iron (Fe)	**3310**	mg/Kg		13.3	20	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Magnesium (Mg)	**83.1**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Manganese (Mn)	**17.9**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Molybdenum (Mo)	**< 0.333**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Nickel (Ni)	**6.24**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Potassium (K)	**115**	mg/Kg		6.67	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Selenium (Se)	**< 2**	mg/Kg		2	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Silver (Ag)	**< 0.333**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Sodium (Na)	**24.5**	mg/Kg		3.33	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Strontium (Sr)	**6.05**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Thallium (Tl)	**< 4**	mg/Kg		4	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Titanium (Ti)	**69.3**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131
Zinc (Zn)	**2.71**	mg/Kg		0.333	1	EPA 6010b	9/27/2012 9:41:00 A	MHH7131

October 4, 2012

Duke Energy
ATTN: Jay Perkins
Scientific Support-Laboratory
13339 Hagers Ferry Road
Huntersville NC 28078
jcperkins@duke-energy.com
labcustomer@duke-energy.com

RE: Project DUK-HV1201 Client Project: J12090223

Dear Mr. Perkins,

On September 18, 2012, Brooks Rand Labs (BRL) received two (2) wastewater samples and three (3) corresponding field blanks. The samples were logged-in for total Hg analysis. All samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

The results were blank-corrected as described in the calculations section of the relevant SOP and may have been evaluated using reporting limits that have been adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

In sequence 1200745, all analyses following continuing calibration verification (CCVA) standard were not within the instrument calibration. All samples were re-analyzed in sequence 1200753. Aside from concentration qualifiers, all data was reported without qualification and all associated quality control sample results met the acceptance criteria.

BRL, an accredited laboratory, certifies the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, see the *Report Information* page of the report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,

Tiffany Stilwater
Project Manager
tiffany@brooksrand.com

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Report Information

Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations /certifications, please visit our website at <http://www.brooksrand.com/default.asp?contentID=586>. Results reported relate only to the samples listed in the report.

Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

Common Abbreviations

BLK	method blank	**MS**	matrix spike
BRL	Brooks Rand Labs	**MSD**	matrix spike duplicate
BS	laboratory fortified blank	**ND**	non-detect
CAL	calibration standard	**NR**	non-reportable
CCV	continuing calibration verification	**PS**	post preparation spike
COC	chain of custody record	**REC**	percent recovery
CRM	certified reference material	**RPD**	relative percent difference
D	dissolved fraction	**RSD**	relative standard deviation
DUP	duplicate	**SCV**	secondary calibration verification
ICV	initial calibration verification	**SOP**	standard operating procedure
MDL	method detection limit	**SRM**	standard reference material
MRL	method reporting limit	**T**	total recoverable fraction

Definition of Data Qualifiers

(Effective 9/23/09)

B Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Result is estimated.
J Estimated value. A full explanation is presented in the narrative.
J-M Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
J-N Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
M Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
N Spike recovery was not within acceptance criteria. Result is estimated.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BRL.

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
Source Water	1238009-01	FGD Wastewater	Sample	09/13/2012	09/18/2012
Source Water Hg Blk	1238009-02	DIW	Field Blank	09/13/2012	09/18/2012
Bottom Ash Sluice Water	1238009-03	FGD Wastewater	Sample	09/13/2012	09/18/2012
Bottom Ash Sluice Water Hg Blk	1238009-04	DIW	Field Blank	09/13/2012	09/18/2012
Trip Blank	1238009-05	DIW	Trip Blank	09/13/2012	09/18/2012

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
Hg	Water	EPA 1631	09/21/2012	09/27/2012	B121721	1200745
Hg	Water	EPA 1631	09/21/2012	10/01/2012	B121721	1200753

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
Bottom Ash Sluice Water										
1238009-03	Hg	FGD Wastewater	T	0.38	B	0.15	0.40	ng/L	B121721	1200753
Bottom Ash Sluice Water Hg Blk										
1238009-04	Hg	DIW	T	0.15	U	0.15	0.40	ng/L	B121721	1200745
Source Water										
1238009-01	Hg	FGD Wastewater	T	0.28	B	0.16	0.42	ng/L	B121721	1200753
Source Water Hg Blk										
1238009-02	Hg	DIW	T	0.15	U	0.15	0.40	ng/L	B121721	1200745
Trip Blank										
1238009-05	Hg	DIW	T	0.15	U	0.15	0.41	ng/L	B121721	1200745

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Accuracy & Precision Summary

Batch: B121721
Lab Matrix: Water
Method: EPA 1631

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B121721-SRM1	**Certified Reference Material (1237042, NIST 1641d 1000x dilution)**						
	Hg		15.68	14.56	ng/L	93% 85-115	
B121721-MS4	**Matrix Spike (1233044-17)**						
	Hg	2.48	19.91	18.20	ng/L	79% 71-125	
B121721-MSD4	**Matrix Spike Duplicate (1233044-17)**						
	Hg	2.48	21.14	19.78	ng/L	82% 71-125	8% 24

Method Blanks & Reporting Limits

Batch: B121721
Matrix: Water
Method: EPA 1631
Analyte: Hg

Sample	Result	Units
B121721-BLK1	0.25	ng/L
B121721-BLK2	0.21	ng/L
B121721-BLK3	0.22	ng/L
B121721-BLK4	0.21	ng/L

Average: 0.22 **Standard Deviation:** 0.02 **MDL:** 0.15
Limit: 0.50 **Limit:** 0.10 **MRL:** 0.41

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Instrument Calibration

Sequence: 1200745
Instrument: THG-05
Date: 09/27/2012
Analyte: Hg

Total Mercury and Mercury Speciation by CVAFS
Method: EPA 1631

Lab ID	True Value	Result	Units	REC & Limits	
1200745-IBL1		0.50	pg of Hg		
1200745-IBL2		1.64	pg of Hg		
1200745-IBL3		2.61	pg of Hg		
1200745-IBL4		2.96	pg of Hg		
1200745-CAL1	10.00	9.73	pg of Hg	97%	
1200745-CAL2	25.00	24.35	pg of Hg	97%	
1200745-CAL3	100.0	98.68	pg of Hg	99%	
1200745-CAL4	500.0	503.0	pg of Hg	101%	
1200745-CAL5	2500	2604	pg of Hg	104%	
1200745-CAL6	10000	10220	pg of Hg	102%	
1200745-CCV1	500.0	516.9	pg of Hg	103%	77-123
1200745-CCB2		7.03	pg of Hg		
1200745-CCB3		5.08	pg of Hg		
1200745-CCB4		6.32	pg of Hg		
1200745-CCB5		7.44	pg of Hg		
1200745-CCB6		8.07	pg of Hg		
1200745-ICV2	1568	1456	pg of Hg	93%	85-115
1200745-CCV2	500.0	526.7	pg of Hg	105%	77-123
1200745-CCB7		9.95	pg of Hg		
1200745-CCV3	500.0	502.2	pg of Hg	100%	77-123
1200745-CCB8		5.84	pg of Hg		
1200745-CCV4	500.0	491.1	pg of Hg	98%	77-123
1200745-CCB9		4.40	pg of Hg		
1200745-CCV5	500.0	498.9	pg of Hg	100%	77-123
1200745-CCBA		3.47	pg of Hg		
1200745-CCV6	500.0	501.7	pg of Hg	100%	77-123
1200745-CCBB		3.20	pg of Hg		
1200745-CCV7	500.0	506.4	pg of Hg	101%	77-123
1200745-CCBC		3.65	pg of Hg		
1200745-CCV8	500.0	490.4	pg of Hg	98%	77-123
1200745-CCBD		5.13	pg of Hg		
1200745-CCV9	500.0	505.2	pg of Hg	101%	77-123
1200745-CCBE		5.18	pg of Hg		
1200745-CCVA	500.0	503.1	pg of Hg	101%	77-123
1200745-CCBF		3.68	pg of Hg		

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Instrument Calibration

Sequence: 1200753
Instrument: THG-05
Date: 10/01/2012
Analyte: Hg

Total Mercury and Mercury Speciation by CVAFS
Method: EPA 1631

Lab ID	True Value	Result	Units	REC & Limits	
1200753-IBL1		2.70	pg of Hg		
1200753-IBL2		3.39	pg of Hg		
1200753-IBL3		5.65	pg of Hg		
1200753-IBL4		6.57	pg of Hg		
1200753-CAL1	10.00	10.85	pg of Hg	108%	
1200753-CAL2	25.00	27.18	pg of Hg	109%	
1200753-CAL3	100.0	95.29	pg of Hg	95%	
1200753-CAL4	500.0	497.1	pg of Hg	99%	
1200753-CAL5	2500	2433	pg of Hg	97%	
1200753-CAL6	10000	9663	pg of Hg	97%	
1200753-ICV1	1568	1500	pg of Hg	96%	85-115
1200753-CCB1		13.3	pg of Hg		
1200753-CCV1	500.0	504.8	pg of Hg	101%	77-123
1200753-CCB2		9.67	pg of Hg		
1200753-CCB3		7.86	pg of Hg		
1200753-CCB4		8.27	pg of Hg		
1200753-CCV2	500.0	516.4	pg of Hg	103%	77-123
1200753-CCB5		8.38	pg of Hg		
1200753-CCV3	500.0	491.0	pg of Hg	98%	77-123
1200753-CCB6		5.68	pg of Hg		
1200753-CAL7	12000	11530	pg of Hg	96%	
1200753-CCV4	500.0	498.8	pg of Hg	100%	77-123
1200753-CCB7		13.6	pg of Hg		

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Containers

Lab ID: 1238009-01
Sample: Source Water
Report Matrix: FGD Wastewater
Sample Type: Sample
Collected: 09/13/2012
Received: 09/18/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250 mL	71659890 20	None	N/A		Cooler

Lab ID: 1238009-02
Sample: Source Water Hg Blk
Report Matrix: DIW
Sample Type: Field Blank
Collected: 09/13/2012
Received: 09/18/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250 mL	71659890 20	None	N/A		Cooler

Lab ID: 1238009-03
Sample: Bottom Ash Sluice Water
Report Matrix: FGD Wastewater
Sample Type: Sample
Collected: 09/13/2012
Received: 09/18/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71666330 10	None	N/A		Cooler

Lab ID: 1238009-04
Sample: Bottom Ash Sluice Water Hg Blk
Report Matrix: DIW
Sample Type: Field Blank
Collected: 09/13/2012
Received: 09/18/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250 mL	71659890 20	None	N/A		Cooler

Lab ID: 1238009-05
Sample: Trip Blank
Report Matrix: DIW
Sample Type: Trip Blank
Collected: 09/13/2012
Received: 09/18/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250 mL	71659890 20	None	N/A		Cooler

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Shipping Containers

Cooler

Received: September 18, 2012 8:45
Tracking No: 5353 0519 4200 via FedEx
Coolant Type: None
Temperature: ambient

Description: Cooler
Damaged in transit? No
Returned to client? No

Custody seals present? No
Custody seals intact? No
COC present? Yes

1238009

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Page 1 of 1

DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

Duke Energy SM

Analytical Laboratory Services
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(980) 875-5245
Fax: (980) 875-4349

Analytical Laboratory Use Only

Work Order: J1209023 | Matrix: OTHER
Logged By: R.L | Date & Time: 9/13/12 1519
Samples Originating From: NC___ SC___ OH___
SAMPLE PROGRAM: Ground Water ___ NPDES ___ Other ___ Plant ___ RCRA Waste ___
Test America
PO# 225674
Cooler Temp (C)

Customer must Complete

1)Project Name: Belews (Bottom Ash/Sluce -UWAG)		2)Phone No:
3)Client: Allen Stowe, Melonie Martin		4)Fax No:
5)Business Unit:	6)RC to: FOPR	7)Mail Code:
8)Project:	9)Activity:	10)Process: BENVWT

Brooks Rand
PO#141391

Please complete all appropriate areas.

15)Preserv.:1=HCL 2=H_2SO_4 3=HNO_3 4=Ice 5=None: 5 | 3 | 3 | 4 | 4

LAB USE ONLY 11)Lab ID	12)Chem Desktop No.	13)Sample Description or ID	14)Collection Information Date	Time	Signature	16)Analyses Required: 17)Comp.	18)Grab	LL Hg (Brooks Rand)	TRM/ICP=Al, Ba, B, Ca, Fe, Mg, Mn, Na, K, Sr	TRM/IMS=Sb, As, Be, Cd, Cr, CO, Cu, PB, Mo, Ni, Se Ag, Sr, Tl, Zn	TT America Hg - 7471 (Brooks Rand)	ICP/SED=Al, Sb, Ba, Be, B, Ca, Cd, Cr, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Se, Ag, Tl, Se, Sr, Tl, Zn	20)Total # of Containers
20120199 20													
20120199 20		Source Water	9/13/2012	0930			x	1	1	1			
21 21	R.L	Source Water Hg Blk	9/13/2012	0925			x	1					
22 23	9/13/12	Bottom Ash Sluice Water	9/13/2012	0858		x		1	1	1			
23 24		Bottom Ash Sluice Water Hg Blk	9/13/2012	0755			x	1					
24 25		Trip Blank	9/13/2012	NA				1	1	1			
25		Field Blank	9/13/2012	0905			x		1	1			
									Collect each above location in a single 500 ml bottle				
20120199 24		Bottom Ash	9/13/2012	0858		x					1	1	

Customer to complete appropriate columns to right

21)Relinquished By:	Date/Time: 9/13/12 1575	Accepted By:	Date/Time: 9/13/12 1515
Relinquished By:	Date/Time:	Accepted By:	Date/Time: 9/18/12 0845
Relinquished By:	Date/Time: 9/17/12 1300	Accepted By:	Date/Time:
Sealed/Locked By:	Date/Time: 9/17/12 1300	Sealed/Lock Opened By:	Date/Time:

24)Comments: Composite Hg sample was collected as 4 discrete grab samples @ 0800, 0810, 0824, and 0837 and composited later in laboratory.

22)Requested Turnaround
28 Days ___X___
*7 Days _____
*48 Hr _____

9-24-12

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-6844-1
Client Project/Site: Belews Bottom Ash J12090223

For:
Duke Energy Corporation
13339 Hagers Ferry Road
Huntersville, North Carolina 28078

Attn: Lab Customer

Authorized for release by:
9/24/2012 6:51:48 PM

Shali Brown
Project Manager I
shali.brown@testamericainc.com

Table of Contents

Sample Summary

Client: Duke Energy Corporation
Project/Site: Belews Bottom Ash J12090223

TestAmerica Job ID: 490-6844-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-6844-1	Bottom Ash	Solid	09/13/12 08:58	09/18/12 08:30

Job ID: 490-6844-1

Laboratory: TestAmerica Nashville

Narrative

CASE NARRATIVE

Client: Duke Energy Corporation

Project: Belews Bottom Ash J12090223

Report Number: 490-6844-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Nashville attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 09/18/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 19.4 C.
Except: Method(s) 7471B: The following sample(s) was received at the laboratory outside the required temperature criteria: Bottom Ash (490-6844-1).

MERCURY

Sample Bottom Ash (490-6844-1) was analyzed for mercury in accordance with EPA SW-846 Method 7471B. The samples were prepared and analyzed on 09/21/2012.

No difficulties were encountered during the mercury analysis. All quality control parameters were within the acceptance limits.

PERCENT SOLIDS

Sample Bottom Ash (490-6844-1) was analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 09/19/2012.

No difficulties were encountered during the % solids analysis. All quality control parameters were within the acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Duke Energy Corporation
Project/Site: Belews Bottom Ash J12090223

TestAmerica Job ID: 490-6844-1

Client Sample ID: Bottom Ash
Date Collected: 09/13/12 08:58
Date Received: 09/18/12 08:30

Lab Sample ID: 490-6844-1
Matrix: Solid
Percent Solids: 57.1

Method: 7471B - Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.172		mg/Kg	☼	09/21/12 09:40	09/21/12 13:58	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	43		0.10		%			09/19/12 12:34	1
Percent Solids	57		0.10		%			09/19/12 12:34	1

Client: Duke Energy Corporation
Project/Site: Belews Bottom Ash J12090223

TestAmerica Job ID: 490-6844-1

Method: 7471B - Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Lab Sample ID: MB 490-21947/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 22224 — **Prep Batch: 21947**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0971		mg/Kg		09/21/12 09:40	09/21/12 13:48	1

Lab Sample ID: LCS 490-21947/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 22224 — **Prep Batch: 21947**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.163	0.1479		mg/Kg		91	80 - 120		

Lab Sample ID: 490-6842-A-1-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 22224 — **Prep Batch: 21947**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		0.275	0.2711		mg/Kg	☼	98	80 - 120		

Lab Sample ID: 490-6842-A-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 22224 — **Prep Batch: 21947**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.276	0.2583		mg/Kg	☼	94	80 - 120	5	20

Method: Moisture - Percent Moisture

Lab Sample ID: 490-6804-A-1 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 21270

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	73			70		%				3	20
Percent Solids	28			30		%				7	20

QC Association Summary

Client: Duke Energy Corporation
Project/Site: Belews Bottom Ash J12090223

TestAmerica Job ID: 490-6844-1

Metals

Prep Batch: 21947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-6842-A-1-B MS	Matrix Spike	Total/NA	Solid	7471B	
490-6842-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	
490-6844-1	Bottom Ash	Total/NA	Solid	7471B	
LCS 490-21947/2-A	Lab Control Sample	Total/NA	Solid	7471B	
MB 490-21947/1-A	Method Blank	Total/NA	Solid	7471B	

Analysis Batch: 22224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-6842-A-1-B MS	Matrix Spike	Total/NA	Solid	7471B	21947
490-6842-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	21947
490-6844-1	Bottom Ash	Total/NA	Solid	7471B	21947
LCS 490-21947/2-A	Lab Control Sample	Total/NA	Solid	7471B	21947
MB 490-21947/1-A	Method Blank	Total/NA	Solid	7471B	21947

General Chemistry

Analysis Batch: 21270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-6804-A-1 DU	Duplicate	Total/NA	Solid	Moisture	
490-6844-1	Bottom Ash	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Duke Energy Corporation
Project/Site: Belews Bottom Ash J12090223

TestAmerica Job ID: 490-6844-1

Client Sample ID: Bottom Ash — **Lab Sample ID: 490-6844-1**
Date Collected: 09/13/12 08:58 — **Matrix: Solid**
Date Received: 09/18/12 08:30 — **Percent Solids: 57.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471B			21947	09/21/12 09:40	LB	TAL NSH
Total/NA	Analysis	7471B		1	22224	09/21/12 13:58	LB	TAL NSH
Total/NA	Analysis	Moisture		1	21270	09/19/12 12:34	RS	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method Summary

Client: Duke Energy Corporation
Project/Site: Belews Bottom Ash J12090223

TestAmerica Job ID: 490-6844-1

Method	Method Description	Protocol	Laboratory
7471B	Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)	SW846	TAL NSH
Moisture	Percent Moisture	EPA	TAL NSH

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Certification Summary

Client: Duke Energy Corporation
Project/Site: Belews Bottom Ash J12090223

TestAmerica Job ID: 490-6844-1

Laboratory: TestAmerica Nashville

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	ACIL		393	10-30-12
A2LA	ISO/IEC 17025		0453.07	12-31-13
Alabama	State Program	4	41150	05-31-13
Alaska (UST)	State Program	10	UST-087	07-24-13
Arizona	State Program	9	AZ0473	05-05-13
Arkansas DEQ	State Program	6	88-0737	04-25-13
California	NELAC	9	1168CA	10-31-12
Canadian Assoc Lab Accred (CALA)	Canada		3744	03-08-14
Colorado	State Program	8	N/A	02-28-13
Connecticut	State Program	1	PH-0220	12-31-13
Florida	NELAC	4	E87358	06-30-13
Illinois	NELAC	5	200010	12-09-12
Iowa	State Program	7	131	05-01-14
Kansas	NELAC	7	E-10229	10-31-12
Kentucky	State Program	4	90038	12-31-12
Kentucky (UST)	State Program	4	19	09-15-13
Louisiana	NELAC	6	LA110014	12-31-12
Louisiana	NELAC	6	30613	06-30-13
Maryland	State Program	3	316	03-31-13
Massachusetts	State Program	1	M-TN032	06-30-13
Minnesota	NELAC	5	047-999-345	12-31-12
Mississippi	State Program	4	N/A	06-30-13
Montana (UST)	State Program	8	NA	01-01-15
Nevada	State Program	9	TN00032	09-30-13
New Hampshire	NELAC	1	2963	10-09-12
New Jersey	NELAC	2	TN965	06-30-13
New York	NELAC	2	11342	04-01-13
North Carolina DENR	State Program	4	387	12-31-12
North Dakota	State Program	8	R-146	06-30-13
Ohio VAP	State Program	5	CL0033	01-19-14
Oklahoma	State Program	6	9412	08-31-13
Oregon	NELAC	10	TN200001	04-30-13
Pennsylvania	NELAC	3	68-00585	06-30-13
Rhode Island	State Program	1	LAO00268	12-30-12
South Carolina	State Program	4	84009 (001)	02-28-13
South Carolina	State Program	4	84009 (002)	02-23-14
Tennessee	State Program	4	2008	02-23-14
Texas	NELAC	6	T104704077-09-TX	08-31-13
USDA	Federal		S-48469	11-02-13
Utah	NELAC	8	TAN	06-30-13
Virginia	NELAC	3	460152	06-14-13
Washington	State Program	10	C789	07-19-13
West Virginia DEP	State Program	3	219	02-28-13
Wisconsin	State Program	5	998020430	08-31-13
Wyoming (UST)	A2LA	8	453.07	12-31-13

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

490-6844 Chain of

COOLER RECEIPT FORM

Cooler Received/Opened On 9/18/2012 @ 0900

1. Tracking # 4174 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID 97460373

2. Temperature of rep. sample or temp blank when opened: 19.4 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where:_____

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES..NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES..NO...NA

12. Did all container labels and tags agree with custody papers? YES..NO...NA

13a. Were VOA vials received? YES..NO..NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES..NO..NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) MW

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) MW

17. Were custody papers properly filled out (ink, signed, etc)? YES..NO...NA

18. Did you sign the custody papers in the appropriate place? YES..NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) MW

I certify that I attached a label with the unique LIMS number to each container (intial) MW

21. Were there Non-Conformance issues at login? YES..NO Was a PIPE generated? YES..NO..#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 6/24/09

9/24/2012

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy

Analytical Laboratory Services
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(980) 875-5245
Fax: (980) 875-4349

Analytical Laboratory Use Only

Work Order: JT12090223 | Matrix: Other
Logged By: R.L8 | Date & Time: 9/13/12 1519

Samples Originating From: NC___ SC___ OH___
SAMPLE PROGRAM: Ground Water ___ NPDES ___ Plant ___ Other ___ RCRA Waste ___

Page 1 of 1
DISTRIB' ORIGINA COPY to
Loc: 490
6844

Customer must Complete

1)Project Name: Belews (Bottom Ash/Sluce -UWAG)		2)Phone No:	
3)Client: Allen Stowe, Melonie Martin		4)Fax No:	
5)Business Unit:	6)RC to: FOPR	7)Mail Code:	
8)Project:	9)Activity:	10)Process: BENVWT	

Test America
PO# 225674

Brooks Rand
PO#141391

Customer to complete all appropriate areas.

Cooler Temp (C)

15 Preserv.: 1=HCL, 2=H_2SO_4, 3=HNO_3, 4=Ice, 5=None

Customer to complete appropriate columns to right

LAB USE ONLY 11 Lab ID	12 Chem Desktop No.	13 Sample Description or ID	14 Collection Information: Date	Time	Signature	16 Analyses Required: 17 Comp.	18 Grab	LL Hg (Brooks Rand)	TRM/ICP=Al, Ba, B, Ca, Fe, Mg, Mn, Na, K,	TRM/IMS=Sb, As, Be, Cd, Cr, CO, Cu, PB, Mo, Ni, Se Ag, Sn, Sr, Tl, Zn (TestAmerica)	Hg - 7471 (Brooks Rand)	ICP/SED=Al, Sb, Ba, Be, B, Ca, Cd, Cr, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Se, Ag, Tl, Se, Sr, Tl, Zn	20 Total # of Containers
15 Preserv.								5	3	3	4	4	
20120199920													
20120199920		Source Water	9/13/2012	0930	[signature]		x	1	1	1			
2122	R.L8 9/13/12	Source Water Hg Blk	9/13/2012	0925			x	1					
2223		Bottom Ash Sluice Water	9/13/2012	0858		x		1	1	1			
2324		Bottom Ash Sluice Water Hg Blk	9/13/2012	0755			x	1					
2425		Trip Blank	9/13/2012	NA	Jay Beckin (?)			1	1	1			
25		Field Blank	9/13/2012	0905	John Quinn (?)		x	1	1	1			
20120199924		Bottom Ash	9/13/2012	0858		x					1	1	01

Collect each above location in a single 500 ml bottle

21)Relinquished By: [signature]	Date/Time: 9/13/12 1515	Accepted By: L. Davis	Date/Time: 9/13/12 1515
Relinquished By:	Date/Time	Accepted By:	Date/Time
Relinquished By: L. Davis	Date/Time: 9/17/12 1300	Accepted By:	Date/Time
Sealed/Locked By: L. Davis	Date/Time: 9/17/12 1300	Sealed/Lock Opened By: [signature] TAW	Date/Time: 9-18-12 @ 0900

19.4°c

22 Requested Turnaround
28 Days ___X___
*7 Days ______
*48 Hr ______
*Other ___ *24 Hr ___ *Add. Cost Will Apply

24)Comments: Composite Hg sample was collected as 4 discrete grab samples @ 0800, 0810, 0824, and 0837 and composited later in laboratory.

9-24-12

9/24/2012

Login Sample Receipt Checklist

Client: Duke Energy Corporation

Job Number: 490-6844-1

Login Number: 6844
List Number: 1
Creator: McBride, Mike

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Refer to Job Narrative for details.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	19.4c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy SM

Analytical Laboratory Services
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(980) 875-5245
Fax: (980) 875-4349

Analytical Laboratory Use Only

Work Order: J1209023 | Matrix: OTHER | Samples Originating From: NC___ SC___ OH___
Logged By: K.B | Date & Time: 9/13/12 1519
Test America
PO# 225674
Brooks Rand
PO#141391
Cooler Temp (C)

SAMPLE PROGRAM: Ground Water ___ NPDES ___ Other ___ Plant ___ RCRA Waste ___

Page 1 of 1

DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

Customer must Complete

1)Project Name	Belews (Bottom Ash/Sluce -UWAG)	2)Phone No:	
3)Client	Allen Stowe, Melonie Martin	4)Fax No:	
5)Business Unit:	6)RC to: FOPR	7)Mail Code:	
8)Project:	9)Activity:	10)Process: BENVWT	

Customer to complete all appropriate areas.

15)Preserv.: 1=HCl, 2=H_2SO_4, 3=HNO_3, 4=Ice, 5=None: 5 | 3 | 3 | 4 | 4

16)Analyses Required

LAB USE ONLY 11)Lab ID	12)Chem Desktop No.	13)Sample Description or ID	14)Collection Information Date	Time	Signature	17)Comp.	18)Grab	LL Hg (Brooks Rand)	TRM/ICP=Al, Ba, B, Ca, Fe, Mg, Mn, Na, K, SUT	TRM/IMS=Sb, As, Be, Cd, Cr, CO, Cu, PB, Mo, Ni, Se Ag, Sr, Sr, Ti, Zn	TestAmerica	Hg - 7471 (Brooks Rand)	ICP/SED=Al, Sb, Ba, Be. B, Ca, Cd, Cr, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Se, Ag, Ti, Se, Sr, Ti, Zn	20)Total # of Containers
~~20120199~~ 20120199														
20120199 20		Source Water	9/13/2012	0930	John R Q		x	1	1	1				
21~~22~~ A	L.B 9/13/12	Source Water Hg Blk	9/13/2012	0925			x	1						
22~~23~~		Bottom Ash Sluice Water	9/13/2012	0858		x		1	1	1				
23~~24~~		Bottom Ash Sluice Water Hg Blk	9/13/2012	0755			x	1						
24~~25~~		Trip Blank	9/13/2012	NA	Jay Bekin			1	1	1				
25		Field Blank	9/13/2012	0905	John Quinn		x		1	1				
									Collect each above location in a single 500 ml bottle					
20120199~~24~~		Bottom Ash	9/13/2012	0858		x						1	1	

Customer to complete appropriate columns to right

21)Relinquished By: John R Q	Date/Time: 9/13/12 1515	Accepted By: L. Davis	Date/Time: 9/13/12 1515
Relinquished By	Date/Time	Accepted By:	Date/Time
Relinquished By: L. Davis	Date/Time: 9/17/12 1300	Accepted By:	Date/Time
Sealed/Locked By: L. Davis	Date/Time: 9/17/12 1300	Sealed/Lock Opened By	Date/Time

22)Requested Turnaround
28 Days ___X___
*7 Days ___
*48 Hr ___
*Other ___24 Hr___
* Add. Cost Will Apply

24)Comments: Composite Hg sample was collected as 4 discrete grab samples @ 0800, 0810, 0824, and 0837 and composited later in laboratory.

9-24-12